DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-003556
Date Inspected: 05-Aug-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 2330
OSM Departure Time: 730
Location: Shanghai, China

CWI Name:	Li Yan Hua			**CWI Present:**	☑ Yes	☐ No		
Inspected CWI report:	☐ Yes	☐ No	☑ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A	
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A	
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A	
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A	

Bridge No: 34-0006
Component: OBG Assembly

Summary of Items Observed:

This report serves to document the events occurring on this date at the following location. Caltrans Quality Assurance (QA) Inspector Robert Vatcher arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following: The weather today is 27C, clear with winds south east & increased at 2-3 kph.

Orthotropic Box Girder (OBG) Fabrication

QA arrived at OBG Bay 1 at 0000 hrs. for the purpose of witnessing Production Monitoring Tests (PMT) in accordance with WPS B T 2342 U1 (Urib) -3 combination GMAW/ SAW on closed rib deck plates. Gantry number 2 will be utilized for these tests conducted on this date. As well these PMT's will be directly associated with Deck Plates DP 442-001 & DP361-001. Tacking was performed prior to QA arrival as well as Magnetic particle Testing (MT) for the associated tack welds. QA did observe that all three sections equaling to a total of six joints on one base "Deck" plate had intimate contact between the closed rib plates and the associated base plate material.

QA observed ZPMC QC Li Yan Hua (CWI for this evolution) and AB/F QC Chang Bao Qian personnel were available for this operation. As well the following welders were available and assigned to the corresponding horizontal welding positions;

Welder ID for Gantry 2 Operator – Li Xide 201492

Welder ID for Gantry Weld 1- Gao Xin Dong 059361

Welder ID for Gantry Weld 2- Jiang Ting Guang 062265

Welder ID for Gantry Weld 3- Zhang Shao Hui 059403

Welder ID for Gantry Weld 4- Chen Jie 059468

Welder ID for Gantry Weld 5- Xiang Huang Feng 059416

Welder ID for Gantry Weld 6- Xiang Jie 059378

As welding began the measured parameters were as follows;

GMAW

	AMPS	VOLTS	Travel Speed
1.	386	30.2	535 mm
2.	375	30.4	Per Minute
3.	367	30.4	Constant
4.	373	30.7	
5.	381	30.7	
6.	383	30.3	

Grinding of the tack welds commenced at this time. Upon grinding QA performed a visual examination of all the root passes including the ground locations of tack welds. QA also observed ZPMC QC Li Yan Hua and AB/F QC Chang Bao Qian personnel perform the same. QC reported no relevant indications. QA concurred upon visual examination as well.

SAW

	AMPS	VOLTS	Travel Speed
1.	689	25.3	512 mm

2. 692 25.2 Per Minute

3. 685 25.1 Constant

4. 686 25.0

5. 680 25.4

6. 693 25.7

Visual- QA observed ZPMC QC Li Yan Hua and AB/F QC Chang Bao Qian perform a 100% visual examination (VT) on DP 170-001 & DP360-001 represented specimens. As well QA performed a visual exam of all six joints. QA concurred with QC assessment that all six joints appeared to conform with the contract documents. QA observed that it appeared that no cracks, overlap, under sizing or over sizing, undercut or incomplete fusion were apparent.

Ultrasonic Testing (UT)- commenced & observed by QA. ZPMC UT personnel Ma Ji Long performed UT for depth of penetration who accepted all six joints by UT method. QA observed the calibration performed by ZPMC UT personnel as well as the UT of all six joints. QA observed that no signals representing lack of penetration appeared during these observations.

QA observes QC representative ZPMC QC Li Yan Hua and ABF Chang Bao Qian conduct measuring of the macro etched specimens

Deck Plates	Depth of Penetration	Tack Weld Location	Penetration < 80%
588/ 608 1-1	>/=12.0 mm		
588/ 608 1-2	>/=12.0 mm		
588/ 608 1-3	10.5 mm		
588/ 608 2-4	>/=12.0 mm		
588/ 608 2-5	10.0 mm		
588/ 608 3-1	>/=12.0 mm		
588/ 608 3-2	10.5 mm		
588/ 608 3-3	>/=12.0 mm		
588/ 608 4-4	>/=12.0 mm		
588/ 608 4-5	>/=12.0 mm		
588/ 608 5-1	>/=12.0 mm		
588/ 608 5-2	9.40 mm		
588/ 608 5-3	>/=12.0 mm		
588/ 608 6-4	>/=12.0 mm		
588/ 608 6-5	>/=12.0 mm		

All were accepted by ZPMC QC Li Yan Hua and ABF QC Chang Bao Qian. QA conducted a measurement of all the specimens utilizing a loupe with a straight edge line and (10) 1.0 mm increments, concurring with the QC

assessment and concluded that all the specimens had a depth of penetration greater than 80% & greater than 70% for a length of 5% or less of total weld length.

The above mentioned items as observed & documented by QA pertaining to the Production Material Testing (PMT) and associated macro etch specimen measuring appear to conform to the contract documents.

Summary of Conversations:

No relevant conversations this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco 138-1694-2685, who represents the Office of Structural Materials for your project.

Inspected By:	Vatcher,Robert	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer